

WHAT IS CLAIMED IS:

sub a1 } 1. A method of receiving a wireless transmission comprising the steps of:  
2 inverting the polarity of an incoming waveform on every one half clock cycle of  
a conversion clock to produce a commutated waveform; and  
4 converting said commutated waveform to a series of representative digital values  
using a delta-sigma modulator clocked by said conversion clock.

sub G17 } 2. The method of claim 1, wherein said incoming waveform is centered  
2 about a radio frequency and carries a modulated signal, wherein said conversion clock  
has a frequency approximately equal to said radio frequency, and said series of  
4 representative digital values are representative of said modulated signal.

3. The method of claim 2, further comprising the step of digitally filtering  
2 said series of representative digital values according to programmable filter  
characteristics wherein said programmable filter characteristics are selected based upon  
4 a type of modulation of said modulated signal.

sub a2 } 4. The method of claim 1, wherein said step of inverting further comprises  
2 the steps of:  
producing an inverted signal representation of said incoming waveform;  
4 producing an non-inverted signal representation of said incoming waveform;  
coupling said inverted signal representation to a first input port of a switch;  
6 coupling said non-inverted signal representation to a second input port of said  
switch; and  
8 coupling said conversion clock to a control port of said switch.

sub G17 } 5. The method of claim 1, wherein said incoming waveform is received  
2 over an antenna and wherein an amplitude of said incoming waveform is in fixed  
proportion to an amplitude of a signal strength received by said antenna.

6. The method of claim 1, further comprising the step of filtering an antenna signal to prevent aliasing out-of-band signal and noise power into a desired signal band, said step of filtering producing said incoming waveform, and wherein a frequency of said conversion clock is selected from a range of frequencies passed in said step of filtering.

2 *sub 037* 7. A receiver comprising:  
a continuous time commutator configured to be coupled to a digital conversion clock and configured to invert a polarity of an incoming signal applied to an input port on every half clock cycle of said digital conversion clock and to produce a commutated signal at an output port; and  
a delta-sigma modulator having a clock input port coupled to said digital conversion clock, having a signal input port coupled to said output port of said continuous time commutator and having an output port configured to produce a series of digital values representative of a modulation waveform carried by said incoming signal.

8. The receiver of Claim 7, wherein said continuous time commutator comprises:

a complementary amplifier configured to receive said incoming signal and to produce an inverted version of said incoming signal at an inverted output port and to produce a non-inverted version of said incoming signal at a non-inverted output port; and

a switch having a first input port coupled to said inverted output port, having a second input port coupled to said non-inverted output port and having a control port coupled to said digital conversion clock.

9. The receiver of Claim 7, wherein said delta-sigma modulator comprises:  
a loop amplifier having a first input port coupled to said output port of said continuous time modulator, having a second input, and having an output port;

a continuous time loop filter coupled to said output port of said loop amplifier and having an output port;

6 an edge-triggered comparator coupled to said output port of continuous time  
loop filter, having a clock input coupled to said digital conversion clock and having an  
8 output port; and

10 a one-bit digital to analog converter having an input port coupled to said output  
port of said edge-triggered comparator and having an output port coupled to said second  
input of said loop amplifier.

10. The receiver of claim 7, further comprising a programmable digital filter  
2 having an input port coupled to said output of said delta-sigma modulator, said  
programmable digital filter configured to filter said series of digital values according a  
4 filter characteristics selected based upon a type of modulation of said modulation  
waveform.

11. The receiver of claim 7, further comprising an antenna coupled to said  
2 continuous time commutator so as to receive said incoming signal, wherein an  
amplitude of said incoming signal is in fixed proportion to an amplitude of a signal  
4 strength received by said antenna.

12. The receiver of claim 7, further comprising a filter configured to receive  
2 an antenna signal and configured to prevent aliasing of out-of-band signal and noise  
power into a desired signal band, said filter coupled to said input port of said continuous  
4 time commutator, wherein a frequency of said conversion clock is selected from a range  
of frequencies passed by said filter.

13. A circuit comprising:  
2 a linearizing operational amplifier in a non-inverting unity follower  
configuration, configured to receive an incoming waveform;  
4 a transistor network having a first input coupled to an output of said linearizing  
operational amplifier and having a second input coupled to said incoming waveform,  
6 said linearizing operational amplifier and said first complementary transistor network

configured to produce a pair of complementary currents that are linearly related to an  
input voltage level of said incoming waveform;

a first current source coupled to said transistor network and configured to  
provide a fixed current through said first transistor network;

a commutator network coupled to a clock signal and coupled to said pair of  
complementary currents that are linearly related to said input voltage level of said  
incoming waveform;

a second current source configured to produce a fixed current; and

a switching network coupled to said second current source, having  
complementary input ports configured to be coupled to logic values and configured to  
produce complementary switched currents, wherein said complementary switched  
currents are coupled to said commutator network in order to control together  
complementary voltage outputs produced by the circuit.

14. A apparatus of receiving a wireless transmission comprising:  
means for inverting the polarity of an incoming waveform on every one half  
clock cycle of a conversion clock to produce a commutated waveform; and  
means for converting said commutated waveform to a series of representative  
digital values using a delta-sigma modulator clocked by said conversion clock.

15. The apparatus of claim 14, wherein said incoming waveform is centered  
about a radio frequency and carries a modulated signal, wherein said conversion clock  
has a frequency approximately equal to said radio frequency, and said series of  
representative digital values are representative of said modulated signal.

16. The apparatus of claim 15 further comprising means for digitally filtering  
said series of representative digital values according to programmable filter  
characteristics wherein said programmable filter characteristics are selected based upon  
a type of modulation of said modulated signal.

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- 2 17. The apparatus of claim 14, wherein said means for inverting further  
comprises:
- 4 producing an inverted signal representation of said incoming waveform;
- 6 producing an non-inverted signal representation of said incoming waveform;
- 8 coupling said inverted signal representation to a first input port of a switch;
- coupling said non-inverted signal representation to a second input port of said  
switch; and
- coupling said conversion clock to a control port of said switch.

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- 2 18. The apparatus of claim 14, wherein said incoming waveform is received  
over an antenna and wherein an amplitude of said incoming waveform is in fixed  
proportion to an amplitude of a signal strength received by said antenna.

- 2 19. The apparatus of claim 14, further comprising means for filtering an  
antenna signal to prevent aliasing out-of-band signal and noise power into a desired  
signal band, said means for filtering producing said incoming waveform, and wherein a  
4 frequency of said conversion clock is selected from a range of frequencies passed in said  
means for filtering.

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